

CURRENT APPROACHES IN SOCIAL, HUMAN AND ADMINISTRATIVE SCIENCES

EDITED BY

Dr. Ayşegül GÜNGÖR

AUTHORS

Prof. Dr. Emine KILAVUZ

Assoc. Prof. Dr. Ebrucan İSLAMOĞLU

Assoc. Prof. Dr. Erhan ÖRUÇ

Asst. Prof. Dr. Demet Şefika MANGIR

Asst. Prof. Dr. Ferda ÜSTÜN

Asst. Prof. Dr. Halit HAMZAOĞLU

Asst. Prof. Dr. Meltem AKCA

Asst. Prof. Şerif CANBAY

Dr. Bahadır KARAKOÇ

Dr. Salih KALAYCI

(Graduate) Lecturer Şeyma ERSOLAK

İhsan AKCA

Mur-Hamida ELDANI

Nimet CANKÜRTÜNCÜ KORAŞ



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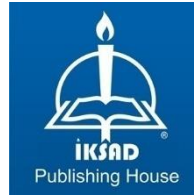
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PREFACE

In today's knowledge era, new information is produced in every second. Particularly, the development process of the social sciences proceeds much more intensely. The main aim of the present study is to make original assessment in social sciences with academicians from different disciplines, as well as, to inspire future research on social sciences. One of the aims of writing this book is to create a scholars network for the future development of studies related to social, human and administrative sciences.

In this book, there are nine chapters containing innovations that may inspire people in social sciences. Herein, there are studies of scientists working in assorted fields of social, human and administrative sciences which are under the titles of Economics, International Trade and Logistics, Accounting, Political Sciences, International Relations, Management and Administrative Studies. First of all, I would like to express my appreciation to our referees and authors for their great teamwork and their contributions in realization of this project. We hope that these valuable studies will contribute greatly to the scientific community.

Dr. Ayşegül GÜNGÖR

CHAPTER 3

THE EFFECTS OF TRADE LIBERALIZATION ON UNEMPLOYMENT: BRICS-T COUNTRIES¹

Prof. Dr. Emine KILAVUZ²,
Nimet CANKÜRTÜNCÜ KORAŞ³

¹ This study is derived from the master thesis entitled “The Effect of Openness on Employment: BRICS-T Example” conducted by Nuh Naci Yazgan University, Institute of Social Sciences under the consultancy of Emine KILAVUZ.

² Nuh Naci Yazgan University, Faculty of Economics and Administrative Sciences, Department of Economics, Kayseri, TURKEY. ekilavuz@nny.edu.tr

³ Nuh Naci Yazgan University, Graduate School of Social Sciences, Department of Economics, Kayseri, TURKEY, nimetcankurtuncu@gmail.com

INTRODUCTION

Unemployment is one of the crucial macroeconomic problems for many economies. Especially in countries with high rate of population growth, the economy is expected to create new employment opportunities. Starting from mercantilists, the effect of foreign trade on employment was discussed, and later found a popular place in classical foreign trade theories. In the Theory of Comparative Advantage, the 19th century economist David Ricardo argued that free trade would generate net profits, and countries that specialize in production in their most productive areas would have more goods for consumption. Moreover, the labor is the only factor of production and free trade reduces unemployment. According to this theory which favors the promotion of free trade, resources will move from high-cost products to low-cost products upon the removal of restrictions, and thus the productivity will go up (Siddiqui, 2018). Along with free trade, perfect specialization and division of labor will be the case in the economy, and marginal productivity of labor will be enhanced in export sectors, and hence, the employment will be increased. In other words, there is a negative association between trade openness and unemployment.

Trade arises from comparative technological differences in Ricardian model whereas it stems from differences in factor endowments according to Heckscher-Ohlin (H-O) Model (Factor Proportions) which is another classical theory. In the H-O model, if the country is well-endowed with labor factor, trade liberalization reduces unemployment. However, in economies with scarce labor resources, the unemployment

goes up along with trade liberalization (Dutt et al. 2009; Awad & Yussof, 2016). According to the H-O model, the elimination of trade barriers will increase the production and exports of countries based on their factor proportions, and so this situation will also lead to an increase in employment. Trade will induce employment opportunities to move from import-substitution sectors to export sectors, in other words, it will give rise to the redistribution of employment between sectors. As labor-intensive developing countries export labor-intensive goods, their employment will also go up in this direction. Helpman and Itskhoki (2010) suggest that, if relative labor market rigidities in sectors producing differentiated goods are low, then the trade liberalization will increase the unemployment. Furthermore, if productivity increases alongside trade liberalization, there will be fall in the demand for labor force (Kreicemeier, 2006). Under the standard conditions, the gains of free trade will exceed damages of foreign competition according to classical economists. However, if people lose their jobs along with the production of more goods through free trade, they will be incapable of consuming more goods at low prices. On the other hand, besides free trade, technological developments in recent years especially the automation in production in conjunction with practices of Industry 4.0 lead to job losses.

In contrast to mercantilist thinking, the free trade will bring about win-win situations and each country will benefit from trade according to classical free trade theory. With this theory, the basis of the globalization has been laid. International Monetary Fund (IMF), World

Bank (WB) and World Trade Organization (WTO) which are among important institutions of globalization support the free trade theory advocated by David Ricardo (Siddiqui, 2018). Today, especially in developing countries, the demand for labor force and real wages will go up by virtue of the movement of production from import-substitution sectors to export sectors, in other words, towards labor-intensive sectors along with increase in openness to trade. Nevertheless, trade liberalization and growing foreign competition do not only affect the composition of tradeables sector but also the efficiency of firms. Thus, the long-run effect of trade liberalization on employment depends on the balance of structural and efficiency effects. That is to say, net effect may not be comprehended just by looking into the composition of trade. On the other hand, the short-run and long-run effects of trade liberalization on employment and wages may also vary based on the degree of factor mobility and the competitiveness of labor market (Milner & Wright, 1998).

Globalization generally refers to a case where all markets across the globe are integrated. The fall in communication and transportation costs along with new technologies increases in foreign trade. The growth rate of developing countries have increased significantly. Depending on whether the sectors in which developing countries increased production as per their comparative advantages were labor-intensive or not, the employment was affected as well. On the other hand, the employment can be negatively affected along with decrease in exports or increase in imports due to external economic conditions. The trade openness either

decreases or increases employment depending on external economic conditions, production technology and imports. In conjunction with trade liberalization arising from the elimination of trade barriers, several countries, either developed or developing, share the fear that openness to trade will lead to job losses. It is believed that the trade liberalization will decrease employment in import-substitution sectors in developing countries, whereas in developed countries, markets for unskilled labor force will be adversely affected by trade liberalization (Yanikkaya, 2008).

In this study, the relationship between trade openness and unemployment of BRICS countries and Turkey which are called as emerging economies in globalizing world was analyzed. It has been examined whether the increase in the degree of openness of these labor intensive countries reduces the unemployment by increasing production in export-oriented or labor-intensive sectors. Firstly, globalization trends of BRICS countries and Turkey will be addressed, and then, the review of literature including studies which addressed the relationship between openness to trade and employment/unemployment will be presented. In the third part, panel data analysis and its results will be explored. In the conclusion part, a general evaluation and policy recommendations will be provided.

1. GLOBALIZATION TRENDS OF BRICS COUNTRIES

In ‘Building Better Global Economic BRICs’ report authored in 2001 by Jim O’Neil, who is the Chairperson of the Board of Directors of Goldman Sachs, the idea of creating a grouping of developing countries

comprised of Brazil, India, Russia and China was developed. The group was firstly named as BRIC with initial letters of above four countries, and it was later called as BRICS with the participation of South Africa to the group in 2010. It was suggested that BRIC countries which came together through annual formal summits and cooperated on the basis of common gains would be key countries producing raw materials, industrial goods and services until 2050 with the help of low labor and production costs (Investopedia, <https://www.investopedia.com/terms/b/bric.asp>).

It is discerned that four BRIC countries became WTO members in 2012. Through liberal trade and investment policies, these countries aspired to reach the target of fast growth by integrating their national economies into world markets. BRICS countries implementing neo-liberal policies as of the early 1990s capture attention in conjunction with the fact that they become centers of attraction for foreign investors in parallel to their growing shares in world trade and their large domestic markets stemming from having high populations. There were considerable increases in exports of these countries with the help of certain practices such as creating favorable investment atmospheres, introducing tax cuts, offering incentives to export-oriented companies and establishing free trade zones. BRICS countries are among the most populous countries of the world and they make up 40% of the world population. The group which makes the largest market of the world creates approximately 20% of the world income and total world trade (weforum.org 2019; Ağır & Yıldırım, 2015). On the other hand, their

economic development levels are still below industrialized economies such as Germany and the USA as demonstrated in Table 1. Income per capita is 59,501 US Dollars in the USA and 44,550 US Dollars in Germany and these figures are very high in comparison to income per capita of BRICS countries.

Table1: General Indicators of BRICS Countries

	GDP at current prices (billion USD)	GDP per capita at current prices (USD)	Inflation, average consumer prices (Percentage change)	Population (million)	Current account balance (% of GDP)
Brazil	2,055	9,895	3.4	20.7	-0.5
Russia	1,527	10,608	3.7	144.0	2.6
India	2,611	1,983	3.6	1,316.9	-2.0
China	12,015	8,643	1.6	1,390.1	1.4
South Africa	349	6,180	5.3	56.5	-2.3
Germany	3,685	44,550	1.7	82.7	8.0
USA	19,391	59,501	2.1	325.9	-2.4

Source: IMF World Economic Outlook Database (April 2018)

If BRICS countries are not analyzed as a whole, but addressed individually at country level in terms of economic structures, it will be observed that they come to forefront in world economy in the following areas (Akçay & Erataş, 2012):

- Brazil with its fast-growing commodity market in the field of agriculture,
- Russia with its energy sector,

- India with its services sector, skilled labor force, and advanced technology in informatics,
- China with the highest production growth rate in global economy besides advantages emanating from cheap labor force,
- Included in BRICS group in 2010, South Africa with its steel industry. South Africa is among the top 25 steel producers in the world.

Even if BRICS countries are endowed with different economic structures, it is deduced that they have complementary economic structures (Akçay & Erataş, 2012).

That the long process of Turkey's membership to the European Union (EU) was inconclusive and the economic cooperation between the EU and Turkey did not go beyond the Customs Union led certain groups to open the debate for Turkey's membership to BRICS. Departing from such debates, the group is named as BRICS-T in certain studies.

Upon the comparison of openness to trade of BRICS countries and Turkey as of 2017, it is discerned that the top three countries which are the most open to trade are successively South Africa, Turkey and Russia. The first three countries with the highest growth rate are consecutively Russia, South Africa and India. On the other hand, if unemployment rate is taken into consideration, it is ascertained that the country with the highest rate of unemployment is South Africa which is the country with the highest level of openness to trade. This country is followed by Brazil and Turkey (Table 2).

Table 2. Economic Indicators of Turkey and BRICS (2017, %)

Countries	Turkey	Brazil	Russia	India	China	South Africa	World
Growth rate	7.41	0.97	22.79	14.21	9.35	18.14	3.15
Openness ratio	54.14	24.11	46.72	40.59	37.80	58.27	-
Unemployment rate	11.26	13.3	5.19	3.52	4.67	27.32	5.48

Source: World Bank, 2019

Since the 1970s, the world experienced the globalization trend in economic, political and social domains, and, in order to identify the position of each country in these three domains in the world, KOF (Institute for Business Cycle Research, Switzerland) publishes a globalization index (kof.ethz.ch). The position of BRICS countries and Turkey in the globalizing world as per globalization index is exhibited in Table 3. The index is scored from 1 to 100. In order to measure the globalization trend, four globalization indices are published: economic globalization index (including commercial and financial flows), social globalization index, political globalization index and overall globalization index.

Table 3. BRICS-T Country Ranking by KOF Globalization Index (2017)

General Globalization			Economic Globalization		Social Globalization		Political Globalization	
No	Country	Index Value	Country	Index Value	Country	Index Value	Country	Index Value
51	Russia Federasyonu	72,45	Turkey (109)	55,82	Russia (89)	70,31	Russia (15)	93,05
56	Turkey	71,58	South Africa (111)	55,30	South Africa (101)	67,45	India (16)	92,96
61	South Africa	70,12	Russia (115))	53,98	Turkey (104)	66,46	Turkey (17)	92,47
80	China	65,08	China (140)	47,87	Brazil (120)	62,97	China (26)	90,61
95	India	62,10	India (155)	41,72	China (138)	56,76	South Africa (34)	90,61
101	Brazil	60,52	Brazil (164)	39,43	India (147)	51,62	Brazil (60)	79,17

Note: Values in parentheses indicate the ranking of the country

Source: <https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html>

In Table 3, the position of Turkey and BRICS countries is displayed in world globalization rankings on the basis of calculations made for 195 countries across the world in accordance with KOF Globalization Index. Of these countries, Russia ranks the 51st whereas Turkey ranks the 56th in the overall globalization index. As per economic globalization index, Turkey ranks the 109th and South Africa ranks the 111th, and both countries are followed by Russia which ranks the 115th in the same index. It is perceived that BRICS-T countries which are addressed in this study are positioned in middle rankings in economic globalization index.

2. LITERATURE REVIEW

Across the world, towards the end of the 20th century, changes started to visibly occur in all domains of life including public administration. The gradual increase in difference between the world trade volume and production volume experienced in conjunction with globalization, and,

despite this fact, the failure to solve the unemployment issue made topics of foreign trade and employment more attractive. In the literature, there exist several studies analyzing the effect of openness to trade on employment. Results of these studies vary across methodologies, spaces and time periods.

In the study by Autor et al. (2016), it was deduced that the employment went down in US industries which were open to imports. Acemoglu et al. (2016) argued that the economic rise of China and competition with Chinese imports led to crucial job losses in the USA. In a panel study performed by Fugazza et al. (2014) with 97 countries, it was found that there was a positive relationship between unemployment and openness to trade. In the panel data analysis carried out by Gozgor (2014) on G7 countries, it was concluded that openness to trade and globalization rather than protectionism had negative effect on unemployment, in other words, openness to trade and globalization alleviated unemployment.

Sachs and Shatz (1994) who analyzed the US trade with developing countries suggested that a commercial structure came into existence as described by Heckscher-Ohlin-Samuelson (H-O-S) Theory. The USA exports goods produced mainly by skilled labor force whereas it generally imports goods produced by unskilled labor force. As per research results, employment fell down in sectors dominated by unskilled labor force while it was going up in sectors employing skilled labor force. Besides, together with foreign trade, the relative price of

goods produced by unskilled labor force declined while the income inequality between skilled and unskilled labor force was being widened.

Marquez and Pages (1997) assessed the impact of free trade and economic reforms on employment in Caribbean and Latin America. In the study, by using the panel data analysis method for 18 countries in Caribbean and Latin America, they analyzed the effect of commercial reforms on employment in manufacturing and the overall economy through four different measurements of openness to trade and real foreign exchange rates. In the end, it was ascertained that, even if just slightly, commercial reforms affected employment negatively. It was asserted that the increase in openness to trade could lead to fall in employment by boosting average productivity of labor at a given level of production. On the other hand, it was found that commercial reforms had no effect on unemployment.

In the study performed by Greenaway et al. (1999) for analyzing the effect of foreign trade on employment in 167 manufacturing sectors in the UK in 1979-1991 by using panel data analysis, it was deduced that the increase in trade volume paved the way for a fall in labor demand. This result is consistent with the view that increasing openness to trade serves to enhance the productivity of labor employed by firms.

Fu and Balasubramanyam (2005) test the effect of increase in exports on employment in 29 provinces of China in 1987-1998 through two-step Generalized Method of Moments (GMM). As per the study result, the exportation has a positive effect on employment. The increase in exports creates job opportunities in an economy which suffers from

unemployment, that is, it enables the utilization of idle resources. On the other hand, the increase of exports in labor-intensive industries brings about a rise in production and causes extra supply of labor in agriculture sector to move to non-agricultural sectors. This process accelerated the urbanization and industrialization in Chinese economy.

By using manufacturing data released in 1988-2007 on a quarterly basis, Polat and Uslu (2010) analyzed the effect of foreign trade on employment in manufacturing through ARDL (Autoregressive Distributed Lag) approach. Analysis results indicate that foreign trade had positive effect on employment in the short-run, however, it had no effect on employment in the long-run.

In the study performed by Dutt et al. (2009) for analyzing the relationship between foreign trade and unemployment in 92 countries in 1985-2004 through panel data analysis method, the Theory of Comparative Advantage served as the basis, and it was argued that the increase in openness to trade lowered the unemployment in the long-run.

Karaçor and Saraç (2011) analyzed the relationship between foreign trade and employment rate of industry sector in 1963-2009 for Turkey through bound test approach to co-integration. According to analysis results, no relationship was found between foreign trade and employment in the short-run, however, it was ascertained that there was a positive relationship in the long run.

Awad and Youssef (2016) examine the effect of economic globalization on the long-run unemployment for the period from 1980 to 2014 in Malaysian economy through ARDL model. Analysis results demonstrated that economic globalization reduced the unemployment in Malaysia in the long-run. In their study of Nigeria, Nwaka et al. (2015) find that in the long run, trade openness is associated with an increase in unemployment for the 1970-2010 period.

Özdemir et al. (2014) examined the effects of trade openness on employment in Turkey and the European Union countries using panel data analysis for the years 200-2012. The results indicate that there is positive relationship between the trade openness and employment. Awad-Warrad (2018) analyze the relationship among the unemployment and some key macroeconomic indicators which is including trade openness and real economic growth for seven selected Arab countries using panel data analysis. The results provide evidence of large and significant impact of trade openness on unemployment rates. In another study, Felbermayr et al. (2011) analyzed the effect of the increase in trade openness on unemployment using data from 20 OECD countries. According to panel analysis results, 10 percent increase in openness rate reduces unemployment by 0.76 percent.

As can be seen from the results of the literature review, it is not possible to say an exact result between openness and unemployment depending on the country, the period and method differences handled. However, as stated in the Ricardo and H-O models, in most of the studies

discussed, trade openness has a positive effect on employment and thus negative effects on unemployment.

3. PANEL DATA ANALYSIS

3.1. Model and Data

According to the economic theory, unemployment rate is affected by many variables such as trade openness, real growth rate, fixed capital formation, population growth, export and import. In the study, the effect of openness on unemployment was examined by the panel ARDL Analysis in Turkey and the BRICS countries for the period 1991-2017. Fixed capital formation and real growth rate are also included as control variables. All of the data used in the study was obtained from the World Bank (World Development Indicators) database. Abbreviations, definitions and data sources of the variables to be used in the analysis are shown in Table 4.

Table 4. Variables Used in the Model and Descriptions

Series name	Descriptions of the series	Data source
UNE	Unemployment rate	World Bank
TOP	Trade Openness (Export+Import)/GDP*100	World Bank
FINV	Fixed capital formation rate (At 2010 \$ prices)	World Bank
RGDP	Real growth rate (At 2010 \$ prices)	World Bank

The standard panel-data model is as follows (De Hoyos & Sarafidis, 2006) ;

$$y_{it} = \alpha_i + \beta' x_{it} + u_{it}, \quad i = 1, \dots, N \text{ and } t = 1, \dots, T \quad (1)$$

where x_{it} is a $K \times 1$ vector of regressors, β is a $K \times 1$ vector of parameters to be estimated, and α_i represent time-invariant individual nuisance parameters. Here u_{it} , is error term which is assumed to be independent and identically distributed (i.i.d) over periods and cross-sectional units. In this study, unemployment-dependent, openness (TOP), real GDP and investments are taken as independent variables and the model is determined as follows.

$$UNE_{it} = \beta_{0it} + \beta_{1it}TOP_{1it} + \beta_{2it}TOP_{2it} + \beta_{3it}FINV_{3it} + \mu_{it} \quad (2)$$

According to this study;

- Trade openness; Under major international trade theories and some assumptions, the increase in trade liberalization reduces the unemployment rate,

$$\frac{dUNE}{dTOP} = \beta_{1it} < 0$$

- Real economic growth reduces overall unemployment rate

$$\frac{dUNE}{dRGDP} = \beta_{2it} < 0$$

- Fixed capital formation is expected to increase production, thereby increasing employment, i.e. reducing unemployment.

$$\frac{dUNE}{dFINV} = \beta_{3it} < 0$$

3.2. Cross Section Dependency Test

In the study, first of all, cross section dependency test will be applied to examine whether cross section units are interdependent. The main purpose of this test is to investigate whether the reflection of a shock that may occur in one of the cross-sectional countries to other countries is the same. The unit root tests to be used in measuring the stationarity of the series are divided into two sections as the first- and second-generation unit root tests according to the presence or absence of a cross-section dependency in the units that make up the panel. In this study, Breusch and Pagan (1980) LM, Pesaran (2004) LM test and Pesaran (2004) CD test were used to analyze the cross-sectional dependency.

$$LM = \sum_{i=1}^{N-1} \sum_{j=i+1}^N T_i \hat{\rho}_{ij}^2 \sim \chi_{\frac{N(N-1)}{2}}^2 \quad (3)$$

Where the $\hat{\rho}_{ij}^2$ are the correlation coefficients obtained from the residuals of the panel data model.

Pesaran (2004) proposes a standardized of the LM statistic and an alternative CD statistic based on the average of the pairwise correlation coefficients ρ_{ij} :

$$LM_S = \sqrt{\frac{1}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^N (T_i \hat{\rho}_{ij}^2 - 1) \sim N(0,1) \quad (4)$$

$$CD = \sqrt{\frac{2}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^N (T_i \hat{\rho}_{ij}^2 - 1) \sim N(0,1) \quad (5)$$

The hypothesis of interest is as follows

$H_0: \rho_{ij} = \rho_{ji} = \text{corr}(\mu_{it}, u_{jt}) = 0, \text{ for } i \neq j$ no cross-sectional dependence

versus

$H_1: \rho_{ij} = \rho_{ji} \neq 0, \text{ for some } i \neq j$ cross-sectional dependence

CD test results are presented in Table 5.

Table 5: Panel Cross-Section Dependence Test

Variable	<i>CD_{LM1}</i> Breusch-Pagan (1980)		<i>CD_{LM2}</i> Peseran (2004)	
	t-Stats.	Prob.	t-Stats.	Prob.
UNE	46,101*	0,001	2,241*	0,025
TOP	130,251*	0,000	7,104*	0,000
RGDP	74,695*	0,000	8,051*	0,000
FINV	167,058*	0,000	12,248*	0,000

Note: * represents statistical significance at 5%.

Both CD tests indicate the presence of common factors affecting the cross-sectional units (cross-sectional dependence). Since all of the cross-section tests have p-values well below 5% significance level, we

can reject the null hypothesis and accept the alternative hypothesis that there exists cross-sectional dependence.

3.3. Pesaran Unit Root Test

Due to the existence of cross-section dependence in the panel, the second-generation unit root tests are chosen to test the panel stationary (Westerlund et al. 2016). The two most popular tests in the context of cross-section dependence are the cross-section augmented Dickey-Fuller (CADF) and CIPS tests of Pesaran which is the cross-section average of the CADF test. Instead of estimating the factor structures of the error terms, Pesaran (2007) developed a panel unit root test, which considers the horizontal cross-section dependency (CD) that offers ease of application in the analysis. Panel unit root tests, called Cross-Sectionally Augmented Dickey-Fuller (CADF) test, which are expanded in terms of section, are called as second-generation unit root tests in the literature.

For this test, CADF test statistics values are calculated for all units that make up the panel, and then CIPS (Cross-Sectionally Augmented Im, Pesaran and Shin test) statistics are obtained throughout the panel by taking the arithmetic average of the CADF test statistics values.

It is used the following model developed by Pesaran (2007) to test the presence of the unit root in the presence of CD:

$$\Delta y_{it} = \alpha_i + b_i y_{i,t-1} + \gamma_i f_t + e_{it}; i=1,2,\dots,N. \quad t=1,2,\dots,T \quad (6)$$

Where $\Delta y_{it} = y_{it} - y_{it-1}$; y_{it} is an i^{th} observation observed at a particular time t , α_i is the intercept, and b_i is a parameter for the variable of y_{it-1} and e_{it} is the random error. The parameter γ_i is factor loading that is common across cross sectional units i and f_t is latent factor.

The hypothesis test for a unit root is defined as follows:

$$H0: b_i = 0; \text{ for all } i=1,2,\dots,N \text{ (unit root)} \quad (7)$$

$$H1: b_i < 0; \text{ for some } i=1,2,\dots,N \text{ (no unit root)}$$

When the null hypothesis is rejected, Model 6 can be expressed as

$$\text{CADF model: } \Delta y_{it} = \alpha_i + b_i y_{i,t-1} + c_i \bar{y}_{t-1} + d_i \Delta \bar{y}_t + e_{it};$$

$$i=1,2,\dots,N. \quad t=1,2,\dots,T \quad (8)$$

As it can be seen Model 8, the standard of Augmented Dickey-Fuller (ADF) model is improved with two more independent variables which are cross section averages of lagged levels (\bar{y}_{t-1}) and the first differences of the individual series ($\Delta \bar{y}_t$).

In the CADF test, t values of b_i coefficients are obtained.

$$t_i(N, T) = \frac{\Delta y_{it} \overline{M_w} y_{i-1}}{\hat{\sigma}(y'_{i-1} \overline{M_w} y_{i-1})^{1/2}}$$

Then, the Pesaran unit root test is given by

$$\bar{t} = N^{-1} \sum_{i=1}^N t_i(N, T)$$

$$CIPS = N^{-1} \sum_{i=1}^N CADF_i$$

CADF and CIPS test statistics results are compared with the critical table values obtained by Monte Carlo simulations introduced by Peseran (2007) and hypotheses are tested for stability. In case the obtained CADF and CIPS test statistic values are higher than the critical table value as absolute value, H0 hypothesis is rejected and alternative hypothesis is accepted.

Since there is cross section dependency in all variables in the study, the stationarity of the series was examined by CIPS Panel Unit Root test and the results are given in Table 6 with the critical table value of Peseran (2007).

Table 6. CIPS Test Results

Variables	Peseran (2007) Level		Peseran (2007) First difference	
	CIPS statistics	Critical table value (%5)	CIPS statistics	Critical table value (%5)
UNE	-1.343	-2.33	-3.888*	-2.33
TOP	-3.035*	-2.33	-	-
FINV	-2.320	-2.33	-4.341*	-2.33
RGDP	-4.235*	-2.33	-	-

Note: * Significant at the 5% level.

The CIPS test show a different order of integration of the variables which TOP and FINV follow I(0) orders and UNE and RGDP follow I(1) orders. Notice that the CIPS statistics are greater than the critical values for trade openness and real growth rate so we do reject the null hypothesis at the 5% significance level. These series are stationary at their own level. On the other hand, it is seen that unemployment and

fixed capital formation are not stationary at level, but when their first differences are taken, they are stationary.

3.4. Panel ARDL Test

Since the stationarity levels of the variables are different, our model was estimated using the Panel ARDL Method (Autoregressive Distributed Lag: Delay Distributed Autoregressive Model) developed by Pesaran et al. (1999). In classical cointegration tests, while series should be at the same level, Panel ARDL allows variables to be stationary of different order (I (0) and I (1)).

The generalised ARDL (p, q,q,...,q) model is specified as:

$$y_{it} = \sum_{j=1}^p \lambda_{ij} y_{i,t-j} + \sum_{j=0}^q \delta'_{ij} X_{i,t-j} + \mu_i + \varepsilon_{it} \quad (9)$$

Where y_{it} is the dependent variable, X_{it} is a Kx1 vector of explanatory variables that are purely I(0) or I(1) or cointegrated; λ_{ij} is the coefficient of the lagged dependent variable; δ'_{ij} are Kx1 coefficient vector; μ_i is the unit-specific fixed effects; $i=1, \dots, N$; $t=1, 2, \dots, T$; p,q are optimal lag orders; ε_{it} is the error term.

The model is reparametrized as a VECM system: re-parameterised ARDL (p,q,q,...,q) error correction model is specified as:

$$\Delta Y_{it} = \phi_i [Y_{i,t-1} - \beta'_i X_{it}] + \sum_{j=1}^{p-1} \lambda'_{ij} \Delta Y_{i,t-j} + \sum_{j=0}^{q-1} \delta'_{ij} \Delta X_{i,t-j} + \mu_i + \varepsilon_{it}, \quad (10)$$

Where the β_i are the long-run parameters; ϕ_i are the error-correction parameters (expected that $\phi_i < 0$) and λ'_{ij} , δ'_{ij} are the short-run dynamic coefficients.

To obtain long-run coefficients for the Panel ARDL it can be used the mean group (MG) estimator and the pooled mean group (PMG) estimator. MG estimator tolerates differences in intercepts, slope, and error variances across groups can be used. However, the MG estimator does not take the issue of cross-sectional dependence into account. On the other hand, PMG estimator developed by Peseran, Shin, and Smith (1999) is more efficient due to the valid long-run restrictions and allows the intercepts, the short-run coefficients, and error variances to differ freely across groups. It generates consistent estimates of the mean of shorth-run coefficients by taking the simple average of individual unit coefficients (Lau et al. 2019). We used PMG estimator in this study and the results of both the long-run and short-run relationships are presented in Table 7.

Table 7. PMG Estimation Results ARDL (2,1,1,1)

Dependent Variable: D(UNE)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long-run coefficients				
TOP	0.259	0.092	2.822	0.006*
RGDP	-0.354	0.166	-2.128	0.035*
FINV	-0.065	0.076	-0.851	0.396
Short-run coefficients				
ECT-1	-0.093	0.046	-2.011	0.046*
D(UNE(-1))	0.204	0.169	1.204	0.231
D(TOP)	-0.043	0.016	-2.582	0.011*
D(RGDP)	-0.017	0.017	-1.001	0.319
D(FINV)	-0.088	0.042	-2.108	0.037*
C	0.543	0.363	1.496	0.137

Note: The optimal lag length for each variable was determined by the Schwarz Criterion. The optimal lag is taken as 1. * Significant at the 5% level.

The PMG results of the analysis are presented in Table 7 showing the short-run and long-run relationship between the unemployment, trade openness, real growth rate and fixed capital formation. A parameter of error correction term, ECT-1 (-0.093) is negative as expected and statistically significant at 5% significance level. It means that there is a long-run relationship among the variables of the model. The coefficient of the ECT term indicates that 9% adjustment in a year from short run disequilibrium to long run equilibrium and the system will reach the equilibrium in about 10.7 (1/0,093) years.

In the long-run, 1% increase in trade openness increased unemployment by 0.259%. This result shows that trade openness have raised the unemployment instead of reducing it, contrary to theoretical

expectations. As stated before, according to the classical foreign trade theory, countries grow by exporting the products they produce at the cheapest price and importing the products they produce expensive. However, the liberal system can increase imports and reduce production and hence employment in the country. On the other hand, 1% increase in real growth rate and fixed capital formation in the long run decreased unemployment by 0.354% and 0.065%, respectively. These results are in line with the expectations of the economic theory. However, the fixed capital parameter is statistically insignificant.

When we look at the results of short-run analysis, a 1% increase in trade openness reduces unemployment by 0.043%. A 1% increase in real GDP reduces unemployment by 0.017%. However, the real GDP coefficient is statistically insignificant at the 5% significance level. This result shows that short period is not enough in decreasing unemployment with increasing production. On the other hand, a 1% increase in fixed capital formation reduced unemployment by 0.088% and the coefficient was statistically significant.

4. RESULTS AND EVALUATION

Globalization process starting in the 1980s is described by Classical economists as the process in which markets prevail over all domains of life. Both in domestic and international markets, liberal policies will facilitate the more efficient use of economic resources, and all countries will benefit. In return, free foreign trade will pave the way for full employment and efficient use of countries' resources. Countries will

either produce and export in areas in which they are the most productive as advocated by the Theory of Comparative Advantage of the Ricardian view or they will be inclined towards specialization and trade which are to be well-suited to their economic endowments according to Heckscher-Ohlin (Factor Proportions) Theory. In the end, the full employment of resources and accordingly the specialization will also increase the employment.

In a globalizing world, parallel to the promotion of openness to trade as a result of liberal policies, employment is expected to increase and thus unemployment will decrease. In this study, data of Turkey and BRICS countries which come together for their analogous and common interests and occupy crucial positions in the world in terms of both population and national income & trade were analyzed in this classical theoretical framework. Results of panel ARDL analysis did not conform to theoretical expectations. A negative relationship between openness to trade and unemployment was found in the short-run, however, the unemployment goes up in the long-run as openness to trade increases. Thus, neither that free trade raises the demand for labor force as a result of specialization and productivity growth as argued by Ricardo nor that openness to trade leads to increase in employment by inducing countries to specialize and raise production in parallel to their factor endowments as suggested by H-O model is the case. This result demonstrates that, as openness to trade is enhanced in Turkey and BRICS countries in the long-run, the unemployment does not fall down, that is, it is not in conformity with expectations of theory and so the

unemployment goes up. This result contradicts the results of studies by Milner and Wright (1998), Gozgor (2014), Özdemir, et al. (2014) and Awad-Warrad (2018). Although openness decreases unemployment in the short-run, it is seen that it will not decrease unemployment in the long-run unless new technology and productivity increase in production is achieved.

As mentioned before, in the liberal system, countries promote growth by producing goods which they can produce inexpensively and by importing goods whose production is costly for them. Nevertheless, with the acceleration of imports, liberal system can lower production and hence the employment in the country. Therefore, the fact advocated by classical theory may not be valid today. The reasons for this scenario are that comparative advantages of countries are considered to be static and that all production is assumed to be carried out within the country. However, in today's world, countries get inputs necessary for production from the most inexpensive locations and they even move the production to locations where production will be the least costly. This situation demonstrates that efforts of capital owners to produce at the lowest cost in order to obtain high profit margins and to survive the competition in globalizing world pave the way for unemployment. On the other hand, besides free trade, factors such as technological developments in recent years especially practices of Industry 4.0 and the population growth are issues related to the increase in unemployment.

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